

REMARKS

The Examiner has rejected the claims of the present invention under various bases. Specifically, the Examiner has rejected Claims 1-18, 23-39, 44-51, and 54-58, under 35 U.S.C. §102(b), based on the contention that those claims are anticipated by U.S. Patent No. 5,207,877, issued to Weinberg et al (Weinberg '877). Further, the Examiner has rejected Claims 19, 20-22, 40-43, 52-53, and 59-65, under 35 U.S.C. §103(a), based on the contention that they are unpatentable over Weinberg '877 in view of U.S. Patent No. 4,617,157, issued to Stein et al (Stein '157). Applicant respectfully traverses the Examiner's rejections.

The Examiner has rejected the application on the same continuing basis as in previous communications, holding that the prior amendments made do not define a patentable invention over Weinberg '877, alone and in combination with Stein '157. After a review of the references, and the present invention, it is clear that there are some fundamental misunderstandings, both about Applicant's claimed invention, and about the disclosure shown in Weinberg '877. Accordingly, Applicant has amended the claims above in order to better clarify the invention.

The present claims have been amended to specifically claim several embodiments of the present invention that are neither shown nor suggested by the prior art. Claims 55 and 64 have been amended to specify that the electrochemical cell has a solid phase electrolyte component, as was originally claimed in Claim 13, now deleted. Further, Claims 66-75 were added to the application to claim specific embodiments of the invention not shown or suggested by the prior art. Specifically, independent claims 66, 70, 71 and 73 were added to claim sanitizing devices and processes for sanitizing a surface, and independent claim 72 was added to claim a process for using the electrochemical cell embodiment having a solid phase electrolyte to sanitize a liquid, gas or other matter.

Thus, the present invention, as claimed, includes both a process and a device for (1) sanitizing substances using an electrochemical cell with a solid phase electrolyte, and (2) sanitizing a surface using either an electrochemical cell or a corona cell. Neither of these embodiments are taught, disclosed, or suggested by the cited art, as will be explained further below. In order to better explain the invention, Applicant has addressed the comments below first to the electrochemical cell, and second to the corona cell.

The Electrochemical Cell Embodiment

The present claims including an electrochemical cell (Claims 55, 64) have been amended to claim an electrochemical cell having a solid phase electrolyte, as was previously disclosed in prior Claim 13. Further, Applicant has added Claim 72 to the application claiming a process for sanitizing substances using a sanitizing device having an electrochemical cell with a solid phase electrolyte. None of the references cited by the Examiner, including Weinberg '877, teach, disclose or suggest such a device.

The process for using the device in Weinberg '877 involves cleaning polluted air by "dissolving pollutants into the scrubber liquid-electrolyte and impressing a voltage across the electrochemical cell." (Weinberg '877, Col. 5, lines 12-14). Once absorbed into the electrolyte, the contaminants are chemically reduced to harmless materials using an electrochemically regeneratable degradant. Any remaining harmful materials are passed through the electrochemical cell where they are broken down to harmless products.

As can be seen from the above, Weinberg '877 only discloses the use of a liquid electrolyte within the device. As such, Applicant submits that Weinberg '877 clearly does not anticipate the present invention as claimed. Further, Applicant additionally submits that the inclusion of a solid

phase electrolyte within the structure of Weinberg '877 would frustrate the purpose of that invention. Weinberg '877 operates to absorb harmful species into an electrolyte, and then chemically break those species down. Any remaining harmful species are broken down when passed through the interior of the electrochemical cell. Thus, Weinberg '877 requires a liquid electrolyte to be used, as absorption of the harmful species into the electrolyte is essential to the device's operation. As such, Weinberg '877 teaches away from the inclusion of a solid phase electrolyte, as now claimed in the present invention. Thus, not only are claims 55, 64, and 72 not anticipated by the teachings of Weinberg '877, the present claims are not made obvious by that reference, either alone or in combination with any other prior art reference, as Weinberg '877 clearly teaches away from the solid phase electrolyte of the present invention. As such, Applicant submits that independent Claims 55, 64 and 72 should now be in condition for allowance.

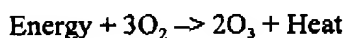
In order to further differentiate the present invention from Weinberg '877, Applicant has additionally added independent Claims 66, 71, and 73. In those claims, an electrochemical cell is disclosed (along with, as an alternative, a corona cell, discussed below) for the sanitization of a surface. Specifically, these claims specify that the sanitizing device includes "means for generating a sanitizing field from the sanitizing component onto a surface." In the electrochemical cell embodiment, the sanitizing field is preferably an electric field, which, when contacted with a surface, substantially sanitizes that surface.

As stated above, the device disclosed in Weinberg '877 is specifically directed to the absorption of contaminants into the device in order to break them down into harmless byproducts. As such, Weinberg '877 never contemplates a device capable of sanitizing a surface external to the device itself. In order to sanitize an external surface, a device must be capable of generating a sanitizing field that may be brought into contact with a surface. Such a device is not taught,

disclosed or suggested by Weinberg '877. Therefore, Applicant submits that independent claims 55, 64, and 72, directed to an electrochemical cell having a solid phase electrolyte, and independent claims 66, 71, and 73, directed at least in part to an electrochemical cell for treatment of a surface, should now all be in condition for allowance.

The Corona Cell Embodiment

The Examiner has maintained the rejection of the claims of the present invention drawn to a corona cell by referring to the anode (12) and cathode (14) of Weinberg '877. Specifically, as mentioned above, the Examiner continues to reject independent claims 46 and 56, which are drawn towards a sanitizing device comprising a corona cell. A corona cell comprises, generally, a set of electrodes that are separated from each other by a gap. A high voltage difference is maintained across both the electrodes so that, when exposed to an environment containing oxygen, the following reaction takes place:



Generally, a dielectric material is preferably placed between the electrodes to prevent current from arcing between the two electrodes.

The Examiner has continued to allege that an electrochemical cell as claimed in Weinberg '877 is the same as the corona cell claimed in the present invention. As can be seen from the above discussion, and as is readily understood by those having ordinary skill in the art, clearly they are not. A corona cell operates without an electrolyte, operating similar to a capacitor, with electrodes separated by a dielectric. The voltage difference between the two electrodes provides the energy

necessary to convert ambient air oxygen into ozone, which is then used to sanitize surrounding materials.

Such a device is not disclosed in Weinberg '877, which simply shows an electrochemical cell. Applicant submits, therefore, that the Examiner has continued to incorrectly reject the claims of the present invention in which a corona cell is incorporated into the sanitizing device, as none of the references cited by the Examiner, including Weinberg '877, teach or disclose the incorporation of a corona cell. Therefore, Claims 66, 69, 70, and 73, are not anticipated by Weinberg '877, as that reference wholly fails to ever disclose the use of a corona cell.

Further, Applicant submits that the inclusion of a corona cell given the teachings of Weinberg '877 would not be obvious. As discussed above, Weinberg '877 clearly requires the use of a liquid electrolyte, while a corona cell has no electrolyte at all. The use of a corona cell, which does not have electrolyte, would frustrate the purpose of Weinberg '877 because Weinberg '877 requires the absorption of the species into an electrolyte for sanitization. Therefore, Applicant submits that Claims 66, 69, 70 and 73, would not be made obvious by Weinberg '877, either alone or in combination with any other prior art reference.

In order to further illustrate the differences between the present invention and the references cited by the Examiner, Applicant has amended Claim 56, and added independent claims 66, 69, 70, and 73, drawn to a sanitizing device and process for using a sanitizing device, wherein a corona cell is at least one preferred embodiment. Specifically, each of the embodiments disclose a corona cell capable of sanitizing a surface. Based on the above explanation of what a corona cell actually is, Applicant submits that none of the references cited by the Examiner, either alone or in combination with any other prior art reference, show the present invention as claimed. Therefore, the presently claimed invention drawn at least in part to a corona cell should also now be deemed in condition for

allowance.

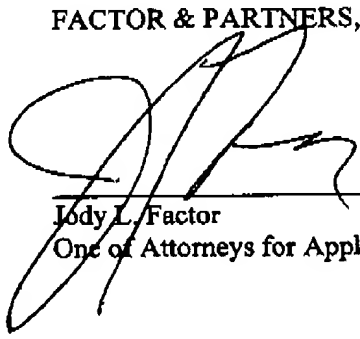
In light of the foregoing, Applicant submits that the application should be in condition for allowance. Specifically, independent claims 46, 55, 56, 64, 66, and 69-73, as well as dependent claims 4-12, 14-22, 26-34, 36-43, 47-54, 57-63, 67-68, and 74-75, now claim patentably distinct inventions from the prior art. Accordingly, reconsideration is respectfully requested.

Should anything further be required, a telephone call to the undersigned, at (312) 226-1818, is respectfully invited.

Respectfully submitted,

FACTOR & PARTNERS, LLC

Dated: September 25, 2002



Jody L. Factor
One of Attorneys for Applicant

CERTIFICATE OF FACSIMILE TRANSMISSION

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Jody L. Factor

AMENDED CLAIMS WITH MARKINGS TO SHOW CHANGES

6. The sanitizing device according to claim 55, wherein the electrochemical cell comprises an anodic component, and a cathodic component[, and an electrolyte].
14. The sanitizing device according to claim [13] 55, wherein the solid phase electrolyte comprises a porous matrix.
17. The sanitizing device according to claim [1] 55, further comprising a particulate filtering component associated with the housing, wherein the particulate filtering component is capable of substantially trapping particulates thereon.
19. The sanitizing device according to claim [1] 55, further comprising fragrance emitting means associated with the housing.
21. The sanitizing device according to claim [1] 55, further associated with forced air means.
28. The multi-layer composite sanitizing device according to claim 64, wherein the electrochemical cell comprises an anodic component, and a cathodic component[, and an electrolyte component].
36. The multi-layer composite sanitizing device according to claim [35] 64, wherein the solid phase electrolyte comprises at least one of at least a portion of the housing, a porous matrix and a particulate filtering component.

38. The multi-layer composite sanitizing device according to claim [23] 64, further comprising a particulate filtering component associated with the housing, wherein the particulate filtering component is capable of substantially trapping particulates thereon.

40. The multi-layer composite sanitizing device according to claim [23] 64, further comprising fragrance emitting means associated with the housing.

42. The multi-layer composite sanitizing device according to claim [23] 64, further associated with a forced air means.

55. A sanitizing device, comprising:

- a sanitizing component for sanitizing a surface, liquid, gas, and/or associated surrounding environment, wherein the sanitizing component includes an electrochemical cell having a solid phase electrolyte, wherein the electrochemical cell is capable of producing an electric field, and where the electric field is capable of sanitizing a surface, liquid, gas and/or associated surrounding environment upon contact; and
- a housing for retaining the sanitizing component.

56. A multi-layer composite sanitizing device, comprising:

- a particulate filtering component capable of substantially trapping particulates thereon;
- a sanitizing component for sanitizing a surface, [liquid, gas, and/or associated surrounding environment,] wherein the sanitizing component includes a corona cell, wherein the corona cell comprises electrodes formed from one of the group of titanium, nickel, steel, copper,

silver, platinum, tungsten, palladium, aluminum, conductive ceramics, dielectric materials, and mixtures and alloys thereof; and

- a housing for retaining the particulate filtering component and the sanitizing component.

64. A multi-layer composite sanitizing device, comprising:

- a particulate filtering component capable of substantially trapping particulates thereon;
- a sanitizing component for sanitizing a surface, liquid, gas, and/or associated

surrounding environment, wherein the sanitizing component includes an electrochemical cell having a solid phase electrolyte, wherein the electrochemical cell is capable of producing an electric field, and where the electric field is capable of sanitizing a surface, liquid, gas and/or associated surrounding environment upon contact; and

- a housing for retaining the particulate filtering component and the sanitizing component.